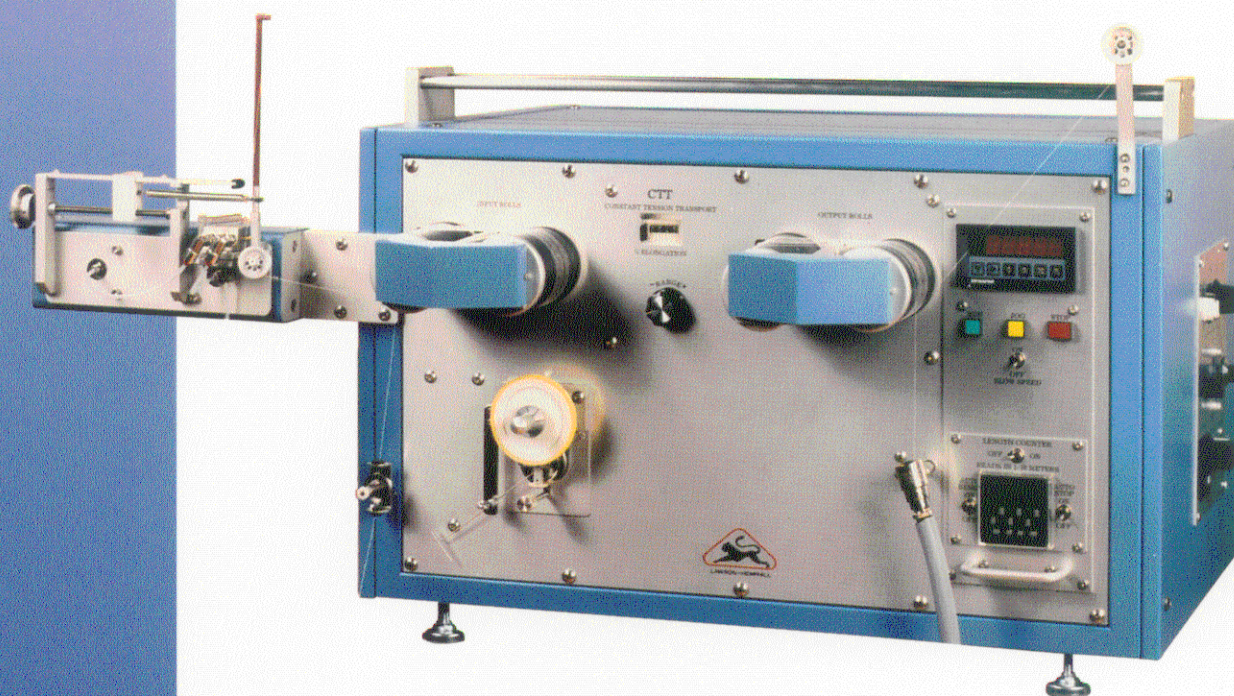


NEW!

TOTAL CONCEPT FOR SPUN YARN TESTING

FROM LAWSON-HEMPHILL



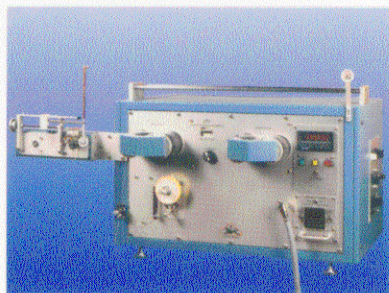
High speed dynamic test instrument
for Spinners, Weavers and Knitters

Four Testing Configurations:

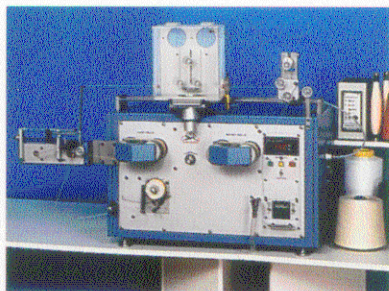
- Weak Spot Detection CTT-BU
- Lint Generation Tester CTT-LGT
- Yarn Abrasion Tester CTT-YAT
- Dynamic Tension Tester-Friction CTT-DTT



Dynamic - Flexible - Quick Results



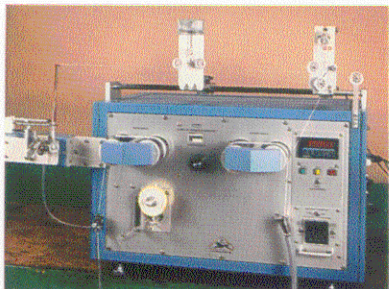
CTT-BU (Basic Unit) - Alone (without any additional hardware) this configuration makes two important measurements: **Weak Spot Detection** and **Dynamic Breaking Strength**. To establish a dynamic breaking load, one slowly increases the tension on a running yarn until breaks occur. For production testing, each yarn may be run at a fixed load for a fixed length at a set tension to test for its performance in breaks in the end use.



CTT-LGT (Lint Generation Tester) - This configuration is designed specifically to test and compare different yarns for lint generation. A must for the manufacturer or end-user of any type staple yarn to determine how much lint a yarn will generate under different manufacturing conditions - yarn to yarn, yarn to metal, yarn to ceramic, needles, sinkers, and reeds at any angle. This test closely simulates *dynamic* production conditions and provides a quick and accurate test.



CTT-YAT (Yarn Abrasion Tester) - This configuration studies the abrasion (cutting potential) of a yarn. Yarn is run over a tensioned copper wire (any metal can be substituted) at a constant tension until the wire is cut through. The total length of yarn required to cut through the wire is compared to other yarns using the same test. Compares the different yarn settings of open end ring spinning yarn and the effects of additives like wax and others on the wear and tear of machine parts (like needles, sinkers, reeds, yarn guides and others).



CTT-DTT (Dynamic Tension Tester or Friction Tester) - By accurately monitoring both input and output tension of yarns run through various devices in the yarn path, the configuration automatically determines the tension buildup developed. Tests include yarn to yarn friction, pin friction, hot pin friction, with full statistical printouts with limits. Conforms with ASTM standard tests for measuring coefficient of friction on yarn to solid material (D-3108) and yarn coefficient of friction (D-3412). Different studies can be made to test the loading effect of various tortures in the yarn path, or to study what affects (in production) the yarn's friction.

CTT Technical Data:

Type of Yarn: Spun yarn, natural, synthetic, blends and others.

Four Tension Ranges:

1. Sensitive Range: 0.5-10 grams
Maintains tension to +/- 0.1 g
2. Low Range: 2-100 grams
Maintains tension to +/- 0.2 g
3. Middle Range: 10-300 grams
Maintains tension to +/- 1 g
4. High Range: 20-700 grams
Maintains tension to +/- 2 g

Speed Ranges: 20-360 meters/min
Slower speeds are available (contact factory)

Dimensions of Basic Unit and Options:

Depth - 470 mm (18.5 in)
Width - 1905 mm (75 in)
Height - 597 mm (23.5 in) (approx.)

Weight: 225 lbs. gross (102 Kg)

Shipping Dimensions: (approx.)

Depth - 762 mm (30 in)
Width - 1194 mm (47 in)
Height - 1270 mm (50 in)
(contact factory for actual dimensions)

Shipping Weight: 300 lbs. gross (136 Kg)

Air Supply: 90 psi (Instrument Air Req'd.)

Air Consumption: 100 CFH max.
(cubic feet/hour)

Voltage Supply: 115 or 220 VAC-50/60 Hz
(Transformers available for other supplies)

Power Consumption: 1000 W max.

Computer Grade Power Required

Note: Specifications subject to change without notice.

USA and Canada:
Lawson-Hemphill Sales, Inc.
P.O. Drawer 6388
Spartanburg, SC 29304, USA
Tel: (803) 579-0644 Telex: 809-433
Fax: (803) 579-3017
USA

AGENTS WORLDWIDE

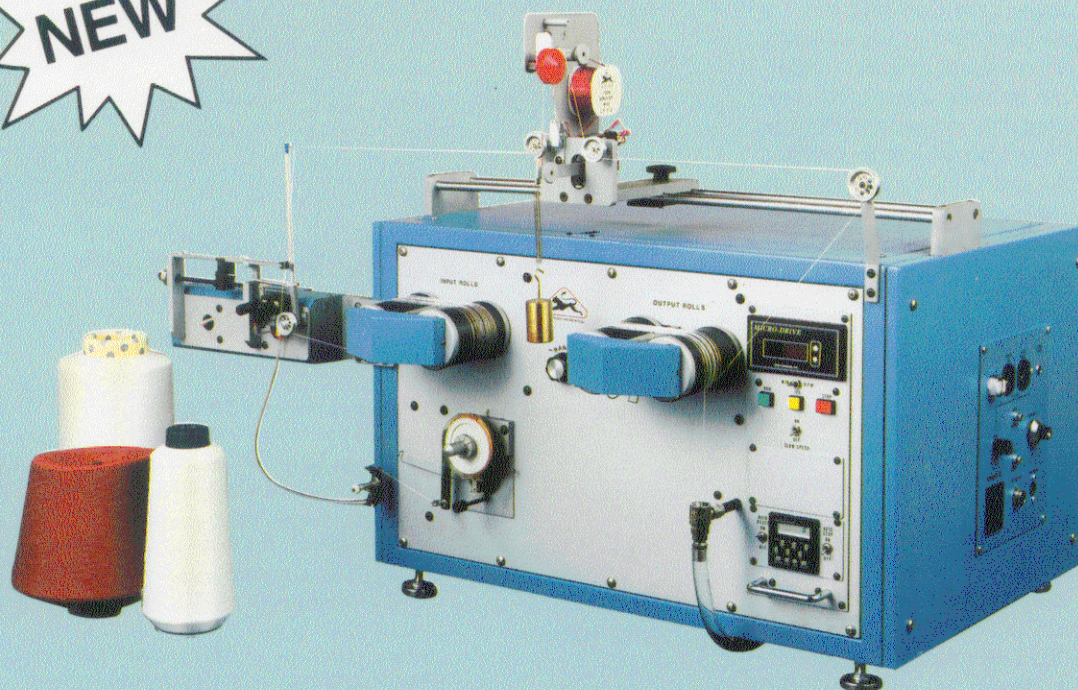


LAWSON-HEMPHILL

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02863
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USA

Yarn Abrasion Tester

CTT-
YAT



The Yarn Abrasion Tester (CTT-YAT) is a new test specifically designed to study the abrasion (cutting potential) of a yarn. Excellent for research and development labs and quality control departments to help minimize manufacturing costs while maintaining good quality. The CTT-YAT analyzes the effects of abrasion on various manufacturing processes to provide conclusive results which determine whether one yarn is more or less abrasive than another yarn. This is related to the amount of wear either yarn may cause in its path during production. Reducing wear on components such as threadguides, needles and heddles will in turn reduce maintenance and part costs and will improve quality. This instrument can also be used to compare the effects a certain finish, finish level, or production additive may have on abrasion

as well as the effects of various levels of trash content in cotton yarns. Two excellent examples that affect abrasion include different fiber cross sections or the addition of titanium oxide during production.

Typical Example for Yarn Abrasion Factor (YAF)

Test Conditions:

Yarn tension: 110 grams
Wire tension: 200 grams
Speed: 150 meters/min

Test Yarn Information:

100% polyester 24/1
open-end spun
Sample A is lower
den/filament
B and C are different
denier

Test Results (YAF*):

	Sample A	Sample B	Sample C
Mean (YAF)	3355.2	3757.2	5711.8
S.D.	123.7	208.9	351.2
C.V.	3.7	5.6	6.1

*YAF (Lawson-Hemphill Yarn Abrasion Factor) = Total yarn length required to cut through 30 gauge copper wire under the test parameters indicated.

LAWSON-HEMPHILL INC.



Why the CTT-YAT?

Several reasons...

The CTT-YAT utilizes its ability to maintain constant tension at any machine speed (20-240 meters/min) for measuring the abrasive properties (cutting potential) of a yarn. The CTT-YAT is able to maintain accurately any calibrated tension (.5-700 g) by utilizing a double servo system. One maintains the selected tension on the sensing arm while the other adjusts the feed rate to maintain an equilibrium in the yarn flow at the tension selected. The abrasion test zone consists of a tensioned soft copper wire (any metal can be substituted) which is in the threadline between the tension arm and the output pulley guide. The yarn is run over the wire at a constant tension until the wire is cut through. The total length of yarn required to cut through the wire (YAF — Lawson-Hemphill Yarn Abrasion Factor) can be compared to other yarns using the same test.

BENEFITS

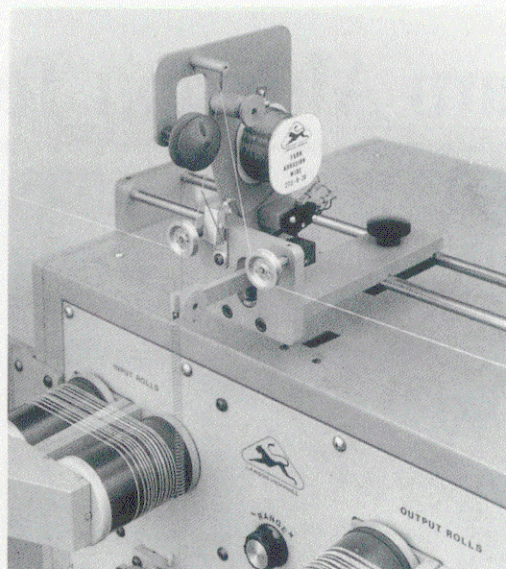
- Helps in analyzing the effects of yarn abrasion on various manufacturing processes
- Helps to maximize the lifetime of wearing components such as threadlines, needles and heddles, which will greatly reduce maintenance and part costs and improve quality
- Quick payback on instrument due to savings on replacement parts
- Helps in finding the right yarn combination or yarn supplier with the least abrasive yarn which will save money on parts and labor for replacement parts

USES

- Research and Development labs or Quality Control
- Helps determine abrasion effects of chemical additives such as titanium oxide used in producing synthetic yarns
- Helps determine the effects a certain finish or finish level or fiber shape may have on abrasion
- Helps determine effects of various levels of trash content (related to amount of carding) in cotton fiber on abrasion
- Can be used to determine practical maintenance periods for replacing worn components

FEATURES

- A tension range of .5-700 grams and a speed range of 20-240 meters/min — both of which can be maintained accurately
- Comparative yarn to yarn tests
- Consistent results



CTT-YAT Technical Data

- Four Tension Ranges:**
1. Sensitive Range: 0.5-10 grams
Maintains tension to ± 0.1 g
 2. Low Range: 2-100 grams
Maintains tension to ± 0.2 g
 3. Middle Range: 10-300 grams
Maintains tension to ± 1 g
 4. High Range: 20-700 grams
Maintains tension to ± 2 g

- Speed Ranges:** 20-240 meters/min
Slower speeds are available (contact factory)
Faster speeds can be accommodated for short periods

- Type of Yarn:** All types 15-1000 denier
(For higher or lower denier contact factory)

- Dimensions of Basic Unit and Options (approx):**
- | | |
|--------|--------------------|
| Depth | — 470 mm (18.5 in) |
| Width | — 1016 mm (40 in) |
| Height | — 597 mm (23.5 in) |

- Shipping Dimensions approx. (contact factory for actual dimensions):**
- | | |
|--------|-------------------|
| Depth | — 762 mm (30 in) |
| Width | — 1194 mm (47 in) |
| Height | — 1270 mm (50 in) |

- Air Supply:** 90 PSI (Instrument air required)

- Air Consumption:** 100 CFH maximum (cubic feet/hour)

- Voltage Supply:** 115 or 220 V AC — 50/60 hz
(Transformers available for other supplies)

- Power Consumption:** 250 w maximum

- Weight:** 150 lbs. gross (68 kg)

- Shipping Weight:** 200 lbs. gross (91 kg)

Note: Specifications subject to change without notice.

AGENTS WORLDWIDE

International:

Lawson-Hemphill Inc.

96 Hadwin Street, Central Falls, RI 02863

Tel: (401) 724-7130 Telex: 927-725

Fax: (401) 724-7361 U.S.A.



U.S.A./Canada:

Lawson-Hemphill Sales, Inc.

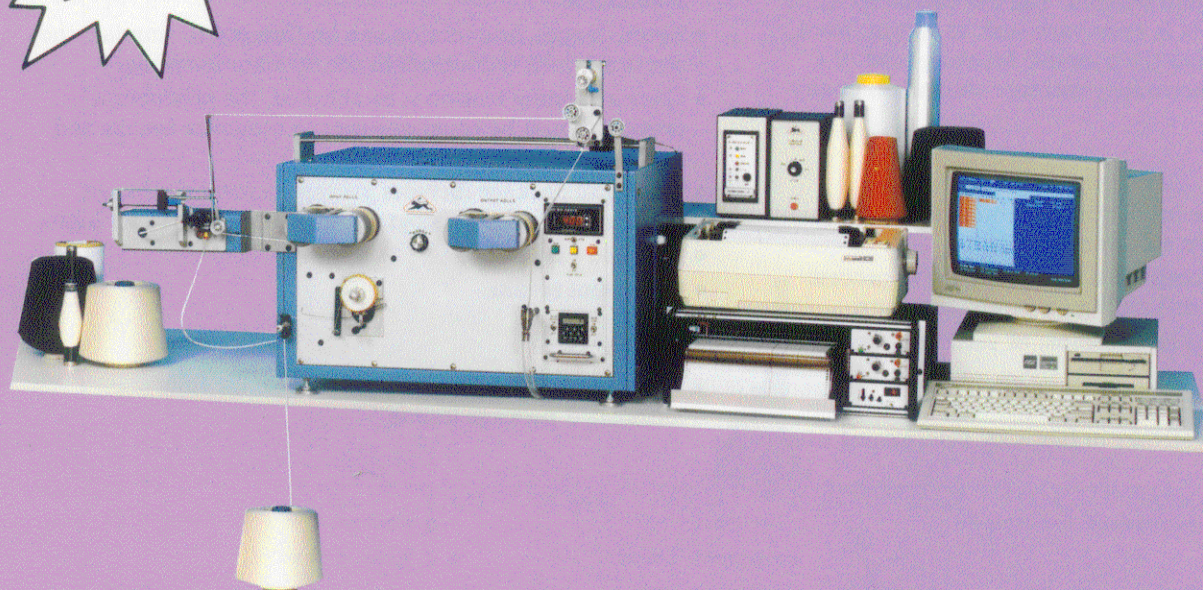
P.O. Drawer 6388, Spartanburg, SC 29304

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Fax: (803) 579-3017

Dynamic Elongation Test

CTT-
DET



A test designed to determine dynamic break, dynamic elongation, and weak spots for all yarn types.

The latest version of the Dynamic Elongation Tester (CTT-DET) is a must for the manufacturer of cotton and synthetic yarns as well as fabrics to determine dynamic break, dynamic elongation, and an accurate process tension. The CTT-DET has the ability to maintain constant tension from .5 grams to 700 grams and is designed to simulate the stresses a yarn encounters during textile manufacturing. This test simulates the in process effects of weaving or knitting on production yarns more closely than static tests. The ability to test yarn dynamically makes it easier and more

accurate to determine at what tension a yarn will run smoothly and at what tension the same yarn will have continual breaks. Once a smooth running tension is established, the yarn can be run at that tension to minimize breaks, and maximize efficiency and quality. The CTT-DET reduces down time at weaving and knitting by exposing weak spots in yarn caused by spinning and winding. The attached computer instantly generates test results, average percent elongation, standard deviation, histograms, and prints out yarns which are out of production limits.

LAWSON-HEMPHILL INC.



Why the CTT-DET?

Several reasons...

The CTT-DET utilizes its ability to maintain constant tension at any machine speed (20-240 m/min) for determining dynamic break and measuring dynamic elongation. The CTT-DET is able to maintain accurately any calibrated tension (.5-700 g) by utilizing a double servo system. One maintains the selected tension on the sensing arm while the other adjusts the feed rate to maintain an equilibrium in the yarn flow at the tension selected. The test can be set up to "hunt" for weak spots in spun yarn such as cotton, wool, acrylic and others, find the dynamic breaking load of a synthetic yarn, and accurately measure elongation at any tension.

BENEFITS

- Helps to determine proper production tension to minimize breaks and improve efficiency.
- Simulates more closely than static tests the in process effects of weaving or knitting on production yarn.
- Dynamically tests a large sample of yarn in a very short time frame.
- Hunts for weak spots at speeds up to 240 meters/min.
- Helps to eliminate streaks in fabric by determining over stressed yarn.

USES

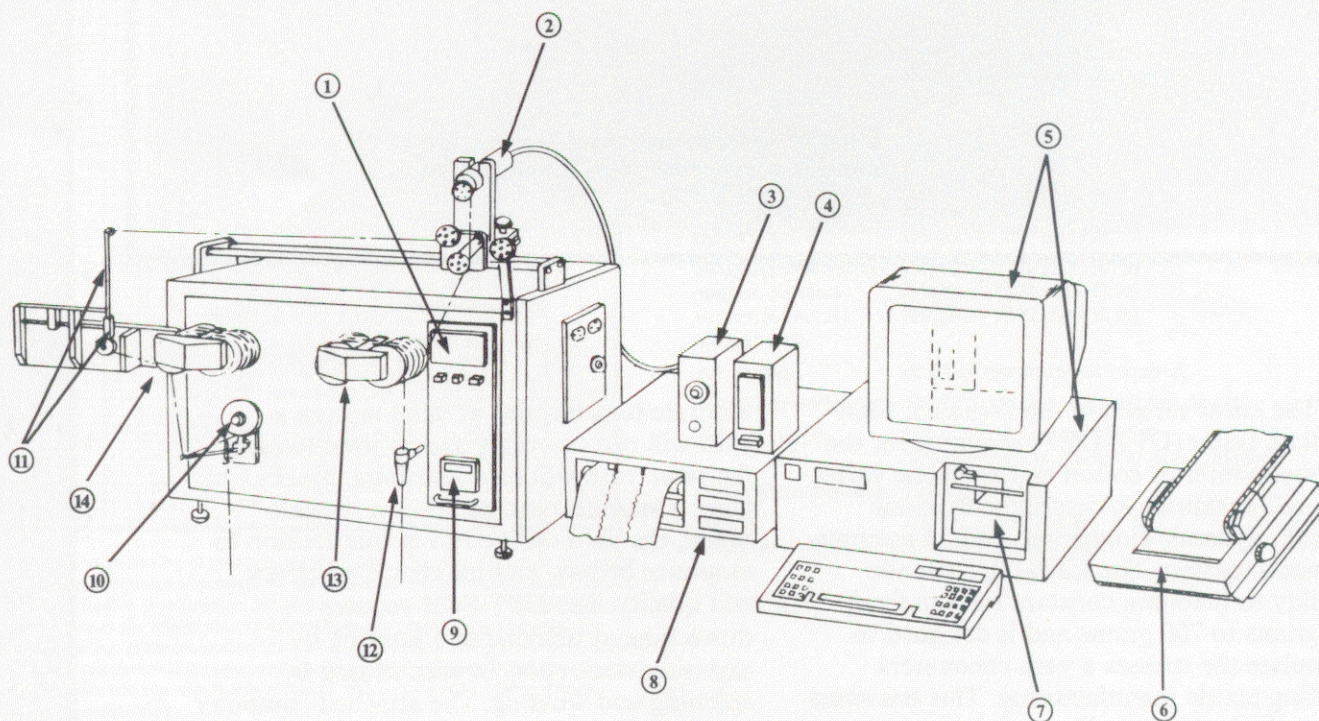
- Production, Research and Development, or Quality Control.
- Spun staple yarns such as cotton, wool, acrylic, etc.
- Synthetic Yarns.

FEATURES

- A tension range of .5-700 g and a speed range of 20-240 meters/min — both of which can be accurately maintained.
- Speed, length, and tension can be changed to simulate the stresses a yarn encounters in textile manufacturing.
- Once a running tension is established, the production tension should be equal or lower to minimize breaks and maximize efficiency and quality.
- Statistical package includes average percent shrinkage, standard deviation, histogram, and the ability to set limits.
- Fast and easy to use.
- Consistent results

OPTIONS

- Automatic yarn changers are available for fully automated package testing.



CTT-DET Standard Features

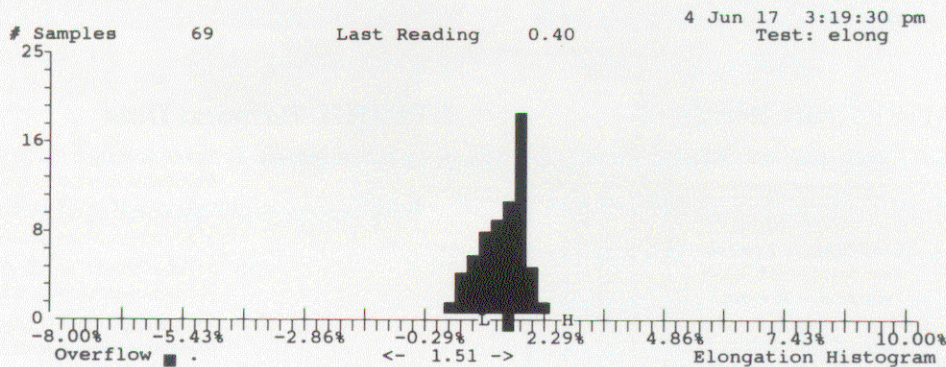
- | | |
|------------------------------------|-------------------------|
| 1. Speed control | 8. Chart recorder |
| 2. Tensiometer | 9. Length counter |
| 3. DET interface | 10. Pretension device |
| 4. Tensiometer interface amplifier | 11. Tension sensing arm |
| 5. Computer for DET software | 12. Suction |
| 6. Printer | 13. Output Rolls |
| 7. DET software and interface | 14. Input Rolls |

Test elong Samples tested

# Sample	Elongation	SD	Temp	Speed
60 0.80L	4 1.32	0.16	107	49 m/m
61 0.60L	5 1.16	0.15	106	
62 0.60L	6 1.20	0.22	105	
63 0.60L	7 1.76	0.23	105	
64 0.20L	8 2.16	0.15	104	
65 0.00L	9 2.12	0.10	103	
66 0.00L	10 1.68	0.10	103	
67 0.20L	11 1.44	0.08	102	
68 0.20L	12 0.96L	0.29	101	
69 0.40L	13 0.40L	0.25	101	

Tot #	Elongation	SD	CV	
ALL 5	1.74	0.12	7.08	50 m/min
GOOD 5	1.74	0.12	7.08	110 Deg.C
ALL 13	1.50	0.51	33.71	49 m/min
GOOD 11	1.65	0.36	21.82	100 Deg.C

F1-Run Test F2-Histogram F3-Edit Test F4-Print F10-SHUTDOWN
F6-Stop Test F7-Load Test



F1-Run Test F3-Edit Test F4-Print F5-Clear Graph

Lawson-Hemphill, Inc. CTT Elongation Test 2 Jun 17 3:20:31 pm

Test #-
Lot #- 16
Machine #-
Date- 6/17/91
Producer-
Merge #-
Temperature- RT
Sample Length- 2
Total Tests- 1000
Test Name- elong
Doff #- 5
Operator #- LRD
Shift- 1
Yarn Count-
Material- Cotton
Tension- 80 g
Samples/Test- 5

Comments-
Speed = 50m/min

Enter up to 5 characters. Use ↑↓ Arrow Keys to change fields.

F1-Run Test F2-Histogram F3-Elongation F4-Print
F7-Load Test F8-Save Test F9-New Test F10-Delete Test

Lawson-Hemphill, Inc. CTT Elongation Editor 2 Jun 17 3:20:13 pm

Test Name- elong

Test Type- Elongation
High Limit- 3.00
Print Out- All Tests
Low Limit- 1.00
Std Dev Lim- 1.00

Hist Reset- At Run Test
Hist MaxTests- 25
Hist Hi Scale- 10.0
Hist Data- Samples Only
Hist Lo Scale- -8.0
Hist Title- Model Histogram

Enter up to 6 digits. Use ↑↓ Arrow Keys to change fields.

F1-Run Test F2-Histogram F3-Edit Test F4-Print F5-Hardware
F8-Save Test

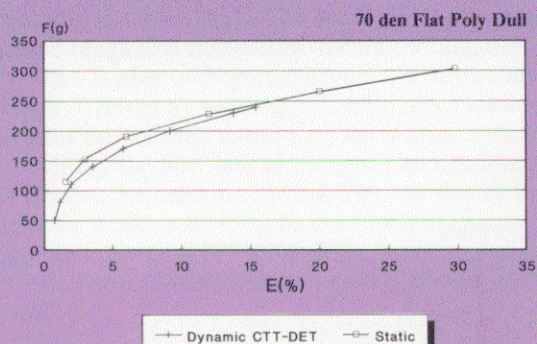
ACTUAL TEST DATA

ELONGATION HISTOGRAM

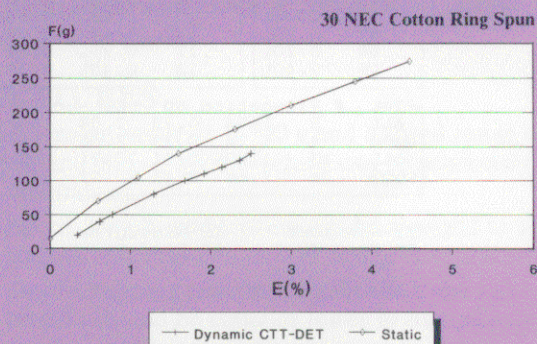
INPUT PARAMETERS

HISTOGRAM PARAMETERS

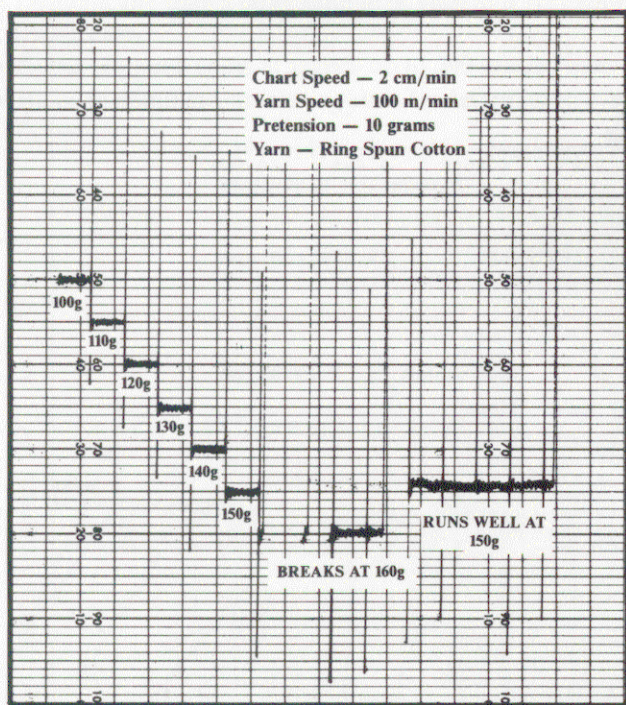
LAWSON-HEMPHILL CTT-DET Stress/Strain Curve Dynamic vs. Static



LAWSON-HEMPHILL CTT-DET Stress/Strain Curve Dynamic vs. Static



CTT-DET Chart Record Various Tensions on Yarn



Tension is increased by 10 grams up to 160 grams. This yarn runs with no breaks up through 150 grams of tension. At 160 grams, the yarn shows continual breaks. When the tension is lowered to 150 grams, the yarn runs well with no breaks. This illustrates the importance of determining the proper running tension for manufacturing. If the tension on the yarn is greater than 150 grams during manufacturing, the yarn will see continual breaks and if the tension is 150 grams or less, the yarn will run with minimal breaks which will lead to higher efficiency during manufacturing.

CTT-DET Technical Data

- Four Tension Ranges:**
1. Sensitive Range: 0.5-10 grams
Maintains tension to ± 0.1 g
 2. Low Range: 2-100 grams
Maintains tension to ± 0.2 g
 3. Middle Range: 10-300 grams
Maintains tension to ± 1 g
 4. High Range: 20-700 grams
Maintains tension to ± 2 g

Speed Ranges: 20-240 meters/min
Slower speeds are available (contact factory)
Faster speeds can be accommodated for short periods

Type of Yarn: All types 15-1000 denier
(For higher or lower denier contact factory)

Dimensions of Basic Unit and Options (approx):
Depth — 470 mm (18.5 in)
Width — 1905 mm (75 in)
Height — 597 mm (23.5 in)

Shipping Dimensions approx. (contact factory for actual dimensions):
Depth — 762 mm (30 in)
Width — 1194 mm (47 in)
Height — 1270 mm (50 in)

Air Supply: 90 PSI (Instrument air required)

Air Consumption: 100 CFH maximum (cubic feet/hour)

Voltage Supply: 115 or 220 V AC — 50/60 hz
(Transformers available for other supplies)

Power Consumption: 250 w maximum

Weight: 225 lbs. gross (102 kg)

Shipping Weight: 300 lbs. gross (136 kg)

Note: Specifications subject to change without notice.

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